

Listing of Claims

- Sub B1
- AI
1. (Currently Amended) A system for transmission of power and/or information between a first location external of a living body and a second position internal of the living body which comprises:
 - (a) a primary controller comprising a power source, ~~and a transmitter and a receiver to receive data from the implanted device,~~ locatable at the first location; and
 - (b) an antenna based device locatable at the second position to receive an output from the transmitter,wherein the power source is adapted to emit high frequency electromagnetic radiation between 0.5 to 5 GHz.
 2. (Currently Amended) ~~The A-system~~ according to claim 1 wherein the power source in the primary controller is adapted to emit high frequency radiation between 0.8 to 2.5 GHz.
 3. (Currently Amended) ~~The A-system~~ according to ~~either of~~ claims 1 ~~or 2~~ wherein the ~~antenna format of the~~ antenna based device comprises an antenna which has is a planar omnidirectional format ~~that~~ and is integrated into the construction of the antenna based device.
 4. (Currently Amended) ~~The A-system~~ according to ~~any of~~ claims 1 ~~to 3~~ wherein the ~~antenna format of the~~ antenna based device comprises an antenna which has a format selected from the group consisting of is a simple dipole, a loop with or without crenellations, or a microstrip antenna including slot and patch formats.
 5. (Currently Amended) ~~The A-system~~ according to ~~any one of~~ claims 1 ~~to 4~~ wherein the primary controller further comprises other devices.
 6. CANCELLED
 7. (Currently Amended) ~~The A-system~~ according to ~~any one of~~ claims 1 ~~to 6~~ wherein the antenna based device further comprises means to monitor predetermined conditions adjacent the antenna based device and to emit signals representative of one or more of these conditions to be received by the primary controller.

8. (Currently Amended) ~~The A-system according to any one of claims 1 to 7~~ wherein the antenna based device further comprises means to generate pulses of current.
9. (Currently Amended) ~~The A-system according to any one of claims 1 to 8~~ wherein the antenna based device is a medical appliance.
10. (Currently Amended) ~~The A-system according to claim 9~~ wherein the antenna based device is a stent.
11. (Currently Amended) A method for transmitting power and/or information between a first location external of a living body at which a primary controller comprising a power source, ~~a and transmitter and a receiver to receive data from an antenna based device at a second position, is located, and a the second position being~~ internal of the living body at which ~~an the~~ antenna based device is located, the method comprising the steps of:
- (a) generating high frequency electromagnetic radiation between 0.5 to 5 GHz from the power source and emitting that radiation from the transmitter of the primary controller, and
 - (b) receiving the radiation at the antenna based device.
12. (Currently Amended) ~~The A-method according to claim 11~~ wherein the high frequency radiation in step (a) is 0.8 to 2.5 GHz.
13. (Currently Amended) ~~The A-method according to either of claims 11 or 12~~ wherein the method comprises further steps of:
- (c) powering the antenna based device with the radiation; and/or
 - (d) causing the antenna based device to generate and emit pulses of current; and/or
 - (e) monitoring predetermined conditions adjacent to the antenna based device and emitting signals representative of one or more of these conditions to be received by the primary controller.
26. (New) The system according to claim 10 wherein the stent is spring-based and the spring of the stent acts as an antenna, and wherein the stent incorporates a monitoring device.
27. (New) The system according to claim 26 wherein the monitoring device is located in the support of the stent.

28. (New) The system according to claim 26 wherein the monitoring device further comprises means to monitor predetermined conditions in the vicinity of the stent.
29. (New) The system according to claim 26 wherein the monitoring device works in conjunction with the primary controller.
30. (New) The system according to claim 26 wherein the monitoring device further comprises means to emit signals representative of one or more of these conditions to be received by the primary controller.
31. (New) The system according to claim 26 further comprising an intermediate implant which relays power and/or information from the primary controller to the stent.
32. (New) The system according to claim 9 wherein the medical appliance is a stimulating device for providing artificial stimulation to a muscle.
33. (New) The system according to claim 32 further comprising an electromyogram sensor for measuring electromyogram signals from the muscle during stimulation and a neural network processor coupled to receive the measured electromyogram signals to extract information regarding force of contraction and fatigue of the muscle, wherein the primary controller is coupled to an output of the neural network processor to control said artificial electrical stimulation based on said extracted information.
34. (New) A method for implementing the system according to claim 33 comprising the steps of:
- (a) performing a training phase under supervision wherein a fixed stimulation pattern is applied to different electrodes in the same muscle; electromyogram recordings are memorised by the neural network against the muscle contraction pattern; and the system learns the correlation of the electromyogram signal, force and fatigue;
 - (b) thereafter, recording the force of contraction when the same muscle is stimulated with different pulse shapes and amplitudes;
 - (c) correlating the time electromyogram wave shape and spectrum of electromyogram signals received from the muscle being stimulated with force of contraction and fatigue; and
 - (d) changing the pulse shape and rate of stimulation in order to achieve a constant muscle contraction.